

PURCHASE DESCRIPTION

FIBER OPTICAL RETURN LOSS METER (FORLM)

FORLM-B/SCAT-TBD

- 1.0 GENERAL This procurement requires an optical return loss meter that can measure the level of the backscattered light caused by various anomalies along a single mode fiber optic transmission path of the TIA/EIA-492CAAA type.
- 2.0 CLASSIFICATION The equipment shall meet the requirements of MIL-PRF-28800F class 3 for Navy shipboard, submarine and shore applications, with the following exceptions:
 - a. The nonoperating temperature requirement is limited to the range of -20°C to +60°C at RH up to 95%
 - b. Unit must be sealed against dirt/humidity; ruggedized against minor impacts.
- 3.0 OPERATIONAL REQUIREMENTS The equipment shall be capable of measuring the level of the backscattered light in dB on a fiber optic path.
 - 3.1 Light Source: Category 1 Laser
 - 3.1.1 Wavelength: At least 1310 nm \pm 20 nm
 - 3.1.1.1 Linewidth: < 5 nm (3 dB down from peak)
 - 3.1.2 Power: > -10 dBm CW
 - 3.1.2.1 Time Stability : \pm 0.1 dB / 8 hours or \pm 0.05 dB / hour
 - 3.1.2.2 Temperature Stability: \pm 0.5 dB {0°C to 40°C}
 - 3.1.2.2 Mechanical stability of connector: Maximum variation of optical levels between repeated matings at the output port of the same unit shall be \leq 0.1 dB.
 - 3.1.3 Interfaces: A low loss SC/APC compatible receptacle shall be provided.
 - 3.2 Return Loss Measurement
 - 3.2.1 Range: Measured reflectance at least 0 to 55 dB
 - 3.2.2 Accuracy: < \pm 0.5 dB {at RL = 55 dB}
 - 3.2.3 Characterization: Calibrated over 1310 \pm 20 nm
 - 3.2.4 FORLM shall be capable of referencing to a finite, back reflected light level less than or equal to -30dB
 - 3.3 Ambient Light Susceptibility

Ambient light susceptibility for the whole set shall be \leq -65 dBm.

3.4 Display: Digital LCD

3.4.1 RL Units: dB

3.4.2 Resolution: At least 0.1 dB

4.0 GENERAL REQUIREMENTS

4.1 Power:

4.1.1 Internal DC battery: Internal rechargeable batteries shall be provided for portable operation.

4.1.1.1 Operating Time: Minimum operating time shall be at least 8 hours following a maximum recharge time of 14 hours.

4.1.2 AC Operation: External adapter provides DC to input jack.

4.1.2.1 AC Voltage: 115 Vac $\pm 10\%$ @ 60 Hz single phase

4.2 Weight: 1 kg max (2.2 lbs)

4.3 Size: Maximum dimensions 28 cm H; 15 cm W; 10 cm L

4.4 Accessories:

4.4.1 Jumper Cable: Jumper cable shall be single mode cable including 900 um buffered fiber, strength member and protective jacket. A SC/APC compatible connector shall be on one end of the jumper cable and an ST compatible connector on the other end.

4.4.2 Protective caps/dust covers for optical ports shall be provided.

4.4.3 Protective carrying case for transporting FORLM and accessories shall be provided.

4.4.4 The FORLM shall be provided with one mandrel with a 6.4 mm (0.25 inch) or other approved diameter.

4.5 Calibration Interval: The calibration interval shall be 24 months minimum. The equipment shall be within all accuracy requirements specified herein, with a 72% or greater confidence factor following a calibration interval of 24 months.

4.6 Technical manual: Technical manuals shall be conformed with standard MIL-PRF-28800F. A Use and Installation manual (Operator's Manual) shall be provided separately. The technical manual shall be provided in both printed and electronic formats. The printed format shall be otherwise normally provided. The electronic format shall consist of the installation programs for the latest version of Adobe Acrobat for all computer platforms for which Acrobat is available and the technical manual in an electronic form that is readable through use of the Adobe Acrobat application.

4.7 Training Material: Either a CD-ROM that provides interactive training capabilities to demonstrate the features, basic operations and procedures for using the FORLM to make return loss measurements, or an operating manual that includes the features, basic operations and step-by-step instructions for performing the return loss measurement shall be provided.

4.8 Battery restrictions: Per MIL-PRF-28800F, lithium and mercury batteries are prohibited without prior authorization. A request for approval for the use of lithium or mercury batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.

- 4.9 Year 2000 Compliance: The manufacturer shall certify that the equipment is not susceptible to malfunction as a result of date/time functions associated with the calendar year 2000 or later.